

SEQUENCE LISTING

<110> Johal, Gurmukh S
Multani, Dilbag S

<120> SORGHUM DWARFING GENES AND METHODS OF USE

<130> 5718-100 (035718/205458)

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<150> 60/165,176

<151> 1999-11-12

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<170> PatentIn Ver. 2.1

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<213> Sorghum bicolor

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Met Phe Met Lys Gly Phe Ser Gly Asp Leu Glu Ala Ala His Ala Arg
20 25 30

gcc acg cag atc gcg ggc gag gcc gtg gcc aac ctg cgc acc gtg gcc 144
Ala Thr Gln Ile Ala Gly Glu Ala Val Ala Asn Leu Arg Thr Val Ala
35 40 45

gcg ttc aac gcg gag cgc aag atc acg ggg ctg ttc gag gcc aac ctg 192
Ala Phe Asn Ala Glu Arg Lys Ile Thr Gly Leu Phe Glu Ala Asn Leu
50 55 60

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Arg Gly Pro Leu Arg Arg Cys Phe Trp Lys Gly Gln Ile Ala Gly Ser
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Leu Trp Tyr Ala Ala Trp Leu Val Lys His Gly Val Ser Asp Phe Ser
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Arg Thr Ile Arg Val Phe Met Val Leu Met Val Ser Ala Asn Gly Ala
115 120 125

gcc gag acg ctg acg ctg gcg ccg gac ttt gtc aag ggc ggg cgc gcg 432
Ala Glu Thr Leu Thr Leu Ala Pro Asp Phe Val Lys Gly Gly Arg Ala
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0094649-44300

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Val Phe Arg Asp Leu Ser Leu Arg Ala Arg Ala Gly Lys Thr Leu Ala	
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Leu Val Gly Pro Ser Gly Cys Gly Lys Ser Ser Val Leu Ala Leu Val	
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 370 375 380

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 Thr Thr Ala Arg Trp Arg Ser Arg Gly Arg Thr Arg Thr Cys Ser Ser
 385 390 395 400

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 35 40 45

Ala Phe Asn Ala Glu Arg Lys Ile Thr Gly Leu Phe Glu Ala Asn Leu
 50 55 60

Arg Gly Pro Leu Arg Arg Cys Phe Trp Lys Gly Gln Ile Ala Gly Ser
 65 70 75 80

Gly Tyr Gly Val Ala Gln Phe Leu Leu Tyr Ala Ser Tyr Ala Leu Gly
 85 90 95

Leu Trp Tyr Ala Ala Trp Leu Val Lys His Gly Val Ser Asp Phe Ser
 100 105 110

Arg Thr Ile Arg Val Phe Met Val Leu Met Val Ser Ala Asn Gly Ala
 115 120 125

THE

Asp Asp Val Asp Ala Ala Pro Val Pro Glu Arg Pro Lys Gly Glu Val
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Glu Leu Lys His Val Asp Phe Ser Tyr Pro Ser Arg Pro Asp Ile Gln
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Val Phe Arg Asp Leu Ser Leu Arg Ala Arg Ala Gly Lys Thr Leu Ala
195 200 205

Leu Val Gly Pro Ser Gly Cys Gly Lys Ser Ser Val Leu Ala Leu Val
210 215 220

Gln Arg Phe Tyr Glu Pro Thr Ser Gly Arg Val Leu Leu Asp Gly Lys
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Asp Val Arg Lys Tyr Asn Leu Arg Ala Leu Arg Arg Val Val Ala Val
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Ala Pro Gln Glu Pro Phe Leu Phe Ala Ala Ser Ile His Asp Asn Ile
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Ala Tyr Gly Arg Glu Gly Ala Thr Glu Ala Glu Val Val Glu Ala Ala
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Thr Gln Ala Asn Ala His Arg Phe Ile Ala Ala Leu Pro Glu Gly Tyr
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Gln Arg Ile Ala Ile Ala Arg Ala Gly Lys Gln Arg Pro Ser Cys Cys
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Arg Arg Arg Trp Ser Ala Arg Gly Pro Gly Ala Pro Pro Ser Trp Trp
355 360 365

Arg Thr Gly Trp Pro Arg Cys Ala Ala Arg Thr Pro Ser Arg Ser Ser
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<212> DNA
<213> Artificial Sequence

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<223> Description of Artificial Sequence:oligonucleotide
primer designed from sequence of Zea mays Br2 gene

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 Glu Leu Glu Ala Phe His Leu Pro Ser Pro Ala His Gln Pro Pro Gly
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 Phe His Leu Ala Ala Gly His Gln Pro Glu Ala Ala Ala Glu Gln Pro
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 Glu Met Asp Gln Pro Pro Asn Ala Lys Pro Ala Ser Ser Ser Ala Ala

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Ala Ala Gly Ala Asn Asp Asn Lys Lys Pro Thr Pro Pro Ala Ala Leu			
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cgc gac ctc ttc cgc ttc gcc gac ggc ctc gac tgc gcg ctc atg ctc			432
Arg Asp Leu Phe Arg Phe Ala Asp Gly Leu Asp Cys Ala Leu Met Leu			
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Val Gly Thr Leu Gly Ala Leu Val His Gly Cys Ser Leu Pro Val Phe			
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ctc cgc ttc ttc gcc gac ctc gtc gac tcc ttc ggc tcc cac gcc aac			528
Leu Arg Phe Phe Ala Asp Leu Val Asp Ser Phe Gly Ser His Ala Asn			
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Asp Pro Asp Thr Met Val Arg Leu Val Val Lys Tyr Ala Phe Tyr Phe			
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Leu Val Val Gly Ala Ala Ile Trp Ala Ser Ser Trp Ala Glu Ile Ser			
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Cys Trp Met Trp Thr Gly Glu Arg Gln Ser Thr Arg Met Arg Ile Arg			
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Tyr Leu Asp Ala Ala Leu Arg Gln Asp Val Ser Phe Phe Asp Thr Asp			
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Val Arg Thr Ser Asp Val Ile Tyr Ala Ile Asn Ala Asp Ala Val Val			
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Gly Ala Gly Arg His Gln Arg Glu Ala Gly Gln Pro His Pro Leu His			
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Gly His Leu Arg Gly Gly Leu Arg Arg Gly Leu His Arg Arg Leu Ala			
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290

295

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 Ser Val Thr Gly Arg Val Glu Met Arg Gly Val Asp Phe Ala Tyr Pro
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485

490

495

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 Thr Val Val Ser Leu Leu Glu Arg Phe Tyr Asp Pro Ser Ala Gly Gln
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Val Tyr Tyr Ala Pro Asp Pro Arg Tyr Met Lys Arg Glu Ile Ala Lys			
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Tyr Cys Tyr Leu Leu Ile Gly Met Ser Ser Ala Ala Leu Leu Phe Asn			
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Trp Phe Asp Ala Asp Glu Asn Ala Ser Ala Arg Val Ala Ala Arg Leu				
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Ala Leu Asp Ala Gln Asn Val Arg Ser Ala Ile Gly Asp Arg Ile Ser				
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Val Ile Val Gln Asn Ser Ala Leu Met Leu Val Ala Cys Thr Ala Gly				
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Phe Val Leu Gln Trp Arg Leu Ala Leu Val Leu Leu Ala Val Phe Pro				
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Ser Gly Asp Leu Glu Ala Ala His Ala Arg Ala Thr Gln Ile Ala Gly				
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Glu Ala Val Ala Asn Leu Arg Thr Val Ala Ala Phe Asn Ala Glu Arg				
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Lys Ile Thr Gly Leu Phe Glu Ala Asn Leu Arg Gly Pro Leu Arg Arg				
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Cys Phe Trp Lys Gly Gln Ile Ala Gly Ser Gly Tyr Gly Val Ala Gln				
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Phe Leu Leu Tyr Ala Ser Tyr Ala Leu Gly Leu Trp Tyr Ala Ala Trp				
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Leu Val Lys His Gly Val Ser Asp Phe Ser Arg Thr Ile Arg Val Phe				

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Ala Thr Glu Ala Glu Val Val Glu Ala Ala Thr Gln Ala Asn Ala His			
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1260

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Thr Thr Leu Pro Ala Ala Arg Arg Thr Ser Asp Thr Ser Thr Ala Ala
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Gly Ala Ala Pro Pro Ser Pro Ser Pro Pro Pro Pro Pro Ala Pro Leu
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Glu Met Asp Gln Pro Pro Asn Ala Lys Pro Ala Ser Ser Ser Ala Ala
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Ala Ala Gly Ala Asn Asp Asn Lys Lys Pro Thr Pro Pro Ala Ala Leu
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Val Gly Thr Leu Gly Ala Leu Val His Gly Cys Ser Leu Pro Val Phe
145 150 155 160

Leu Arg Phe Phe Ala Asp Leu Val Asp Ser Phe Gly Ser His Ala Asn
165 170 175

Asp Pro Asp Thr Met Val Arg Leu Val Val Lys Tyr Ala Phe Tyr Phe
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195 200 205

Cys Trp Met Trp Thr Gly Glu Arg Gln Ser Thr Arg Met Arg Ile Arg
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Val Arg Thr Ser Asp Val Ile Tyr Ala Ile Asn Ala Asp Ala Val Val
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Thr	Val	Gln	His	Val	Phe	Trp	Asp	Thr	Val	Gly	Glu	Asn	Leu	Thr	Lys	
865					870					875					880	
Arg	Val	Arg	Glu	Lys	Met	Phe	Ala	Ala	Val	Leu	Arg	Asn	Glu	Ile	Ala	
				885					890					895		
Trp	Phe	Asp	Ala	Asp	Glu	Asn	Ala	Ser	Ala	Arg	Val	Ala	Ala	Arg	Leu	
			900					905						910		
Ala	Leu	Asp	Ala	Gln	Asn	Val	Arg	Ser	Ala	Ile	Gly	Asp	Arg	Ile	Ser	
		915					920					925				
Val	Ile	Val	Gln	Asn	Ser	Ala	Leu	Met	Leu	Val	Ala	Cys	Thr	Ala	Gly	
	930					935					940					
Phe	Val	Leu	Gln	Trp	Arg	Leu	Ala	Leu	Val	Leu	Leu	Ala	Val	Phe	Pro	
945					950					955					960	
Leu	Val	Val	Ala	Ala	Thr	Val	Leu	Gln	Lys	Met	Phe	Met	Lys	Gly	Phe	
				965					970					975		
Ser	Gly	Asp	Leu	Glu	Ala	Ala	His	Ala	Arg	Ala	Thr	Gln	Ile	Ala	Gly	
		980						985					990			
Glu	Ala	Val	Ala	Asn	Leu	Arg	Thr	Val	Ala	Ala	Phe	Asn	Ala	Glu	Arg	
		995					1000					1005				
Lys	Ile	Thr	Gly	Leu	Phe	Glu	Ala	Asn	Leu	Arg	Gly	Pro	Leu	Arg	Arg	
	1010					1015					1020					
Cys	Phe	Trp	Lys	Gly	Gln	Ile	Ala	Gly	Ser	Gly	Tyr	Gly	Val	Ala	Gln	
1025					1030					1035					1040	

Phe Leu Leu Tyr Ala Ser Tyr Ala Leu Gly Leu Trp Tyr Ala Ala Trp
 1045 1050 1055

Leu Val Lys His Gly Val Ser Asp Phe Ser Arg Thr Ile Arg Val Phe
 1060 1065 1070

Met Val Leu Met Val Ser Ala Asn Gly Ala Ala Glu Thr Leu Thr Leu
 1075 1080 1085

Ala Pro Asp Phe Val Lys Gly Gly Arg Ala Met Arg Ser Val Phe Glu
 1090 1095 1100

Thr Ile Asp Arg Lys Thr Glu Val Glu Pro Asp Asp Val Asp Ala Ala
 1105 1110 1115 1120

Pro Val Pro Glu Arg Pro Lys Gly Glu Val Glu Leu Lys His Val Asp
 1125 1130 1135

Phe Ser Tyr Pro Ser Arg Pro Asp Ile Gln Val Phe Arg Asp Leu Ser
 1140 1145 1150

Leu Arg Ala Arg Ala Gly Lys Thr Leu Ala Leu Val Gly Pro Ser Gly
 1155 1160 1165

Cys Gly Lys Ser Ser Val Leu Ala Leu Val Gln Arg Phe Tyr Glu Pro
 1170 1175 1180

Thr Ser Gly Arg Val Leu Leu Asp Gly Lys Asp Val Arg Lys Tyr Asn
 1185 1190 1195 1200

Leu Arg Ala Leu Arg Arg Val Val Ala Val Ala Pro Gln Glu Pro Phe
 1205 1210 1215

Leu Phe Ala Ala Ser Ile His Asp Asn Ile Ala Tyr Gly Arg Glu Gly
 1220 1225 1230

Ala Thr Glu Ala Glu Val Val Glu Ala Ala Thr Gln Ala Asn Ala His
 1235 1240 1245

Arg Phe Ile Ala Ala Leu Pro Glu Gly Tyr Gly Thr Gln Val Gly Glu
 1250 1255 1260

Arg Gly Val Gln Leu Ser Gly Gly Gln Arg Gln Arg Ile Ala Ile Ala
 1265 1270 1275 1280

Arg Ala Leu Val Lys Gln Ala Ala Ile Val Leu Leu Asp Glu Ala Thr
 1285 1290 1295

09711613, 11300

Ser Ala Leu Asp Ala Glu Ser Glu Arg Cys Val Gln Glu Ala Leu Glu
1300 1305 1310

Arg Ala Gly Ser Gly Arg Thr Thr Ile Val Val Ala His Arg Leu Ala
1315 1320 1325

Thr Val Arg Gly Ala His Thr Ile Ala Val Ile Asp Asp Gly Lys Val
1330 1335 1340

Ala Glu Gln Gly Ser His Ser His Leu Leu Lys His His Pro Asp Gly
1345 1350 1355 1360

Cys Tyr Ala Arg Met Leu Gln Leu Gln Arg Leu Thr Gly Gly Cys Arg
1365 1370 1375

Ala Arg Ala Ala Ala Val Val Val Gln Arg Gly Arg Arg Val Gly Trp
1380 1385 1390

Met Asp Gly Ser Trp Met Ser Leu Val Pro
1395 1400

09711619 111300